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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/980,075 | 01/04/2002 | Martin Bergenwall | 4925-180PUS | 5387 |

7590 05/09/2006

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| EXAMINER |
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NGUYEN, STEVEN H D

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2616

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 09/980,075 | Applicant(s) BERGENWALL, MARTIN | |
| | Examiner Steven HD Nguyen | Art Unit 2616 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-12,15,16,18,19,21 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-12,15,16,18,19,21 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment filed on 2/27/06. Claims 4, 13-14, 17, 20 and 22 have been canceled and claims 1-3, 5-12, 15-16, 18-19, 21 and 23-25 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3, 5, 7-12, 15-16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaskar (IEEE) in view of Ziegler (IEEE).

Regarding claims 1-3, 5, 7-12, 15-16 and 23-25, Chaskar discloses a packet data transmission network system comprising a sender for transmitting data packets using TCP/IP

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connection to the receiver through a packet data connection via a network element (page 200, Sec 2, source “sender”, destination “receiver” and intermediate node “network element” is interface between the wire-line and wireless, page 199, Abstract) is arranged to buffer data packets transmitted by the sender and detect transmission conditions comprising buffering conditions of data packets at network element and radio conditions and modify the window size accordingly (using dynamic window based flow control protocol for modifying the value of the advertised window based on the size of buffer and wireless channel characteristic; Page 199, Sec 1, 2.2, 3 and Abstract); the network element is arranged to modify the window size to a lower value when it detects a decreasing quality of transmission conditions (Page 199, Right col., First and second Par); implicitly teaches that the network element is arranged to quit modifying the window size when it detects that the quality of transmission conditions is increasing and allow the receiver to set the window size normally (Page 199, Right col., First and second Par). However, Chaskar fails to fully disclose the receiver being arranged to acknowledge each received data packet by an acknowledgment message containing header data comprising a window size, the number of transmitted bytes for which the sender has not received an acknowledgment from the receiver being not allowed to exceed the window size; examine and modify the window size of the header data of ACK packet by network element based on buffer condition. In the same field of endeavor, Ziegler discloses the receiver being arranged to acknowledge each received data packet by an acknowledgment message containing header data comprising a window size, the number of transmitted bytes for which the sender has not received an acknowledgment from the receiver being not allowed to exceed the window size; examine and modify the window size of the header data of ACK packet by network element using TCP/IP

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based on buffer condition (Fig 1 discloses the gateway modifies the window value in the ACK packet based on the buffer size, Abstract; sections 1.2 and 2.2 on page 411); the network element is arranged to modify the window size to a lower value when it detects a decreasing quality (longer q-length) of transmission conditions (last paragraph of sections 2.1 on page 412); implicitly teaches that the network element is arranged to quit modifying the window size when it detects that the quality of transmission conditions is increasing and allow the receiver to set the window size normally.

Since, Chaskar suggests the use of a dynamic window based flow control by varying the window size based on radio condition and buffer size of a network element between the wireless and wire-line network. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and apparatus for modifying the window size of Ack packet based buffer size of a network element as disclosed by Ziegler into the teaching of Chaskar because the window size of the ACK packet must take into consideration of congestion of the path between the end node, wherein congestion at the based station or wireless gateway is based on radio condition and buffer size is well known and expected in the art when window based flow control is implemented on the system. The motivation would have been to improve the throughput of the system and prevent the data loss.

5. Claims 1-3, 5, 7-12, 15-16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaskar (IEEE) in view of Kalampoukas (USP 6438101).

Regarding claims 1-3, 5, 7-12, 15-16 and 23-25, Chaskar discloses a packet data transmission network system comprising a sender for transmitting data packets using TCP/IP connection to the receiver through a packet data connection via a network element (page 200,

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Sec 2, source “sender”, destination “receiver” and intermediate node “network element” is interface between the wire-line and wireless, page 199, Abstract) is arranged to buffer data packets transmitted by the sender and detect transmission conditions comprising buffering conditions of data packets at network element and radio conditions and modify the window size accordingly (using dynamic window based flow control protocol for modifying the value of the advertised window based on the size of buffer and wireless channel characteristic; Page 199, Sec 1, 2.2, 3 and Abstract); the network element is arranged to modify the window size to a lower value when it detects a decreasing quality of transmission conditions (Page 199, Right col., First and second Par); implicitly teaches that the network element is arranged to quit modifying the window size when it detects that the quality of transmission conditions is increasing and allow the receiver to set the window size normally (Page 199, Right col., First and second Par). However, Chaskar fails to fully disclose the receiver being arranged to acknowledge each received data packet by an acknowledgment message containing header data comprising a window size, the number of transmitted bytes for which the sender has not received an acknowledgment from the receiver being not allowed to exceed the window size; examine and modify the window size of the header data of ACK packet by network element based on buffer condition. In the same field of endeavor, Kalampoukas discloses the receiver (Fig 6, Ref 125) being arranged to acknowledge each received data packet by an acknowledgment message containing header data comprising a window size (Fig 6, ACK 21000, Win 8000), the number of transmitted bytes for which the sender has not received an acknowledgment from the receiver being not allowed to exceed the window size; examine and modify the window size of the header data of ACK packet by network element using TCP/IP connection based on buffer condition (Fig

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6, Ref 110 modifying WIN value of the ACK packet based on the congestion at router, switch or gateway, Col. 10, lines 24-39); the network element is arranged to modify the window size to a lower value when it detects a decreasing quality of transmission conditions (Col. 10, lines 24-39, new modified window size is based on conditions such available buffer and available bandwidth of the link); implicitly teaches that the network element is arranged to quit modifying the window size when it detects that the quality of transmission conditions is increasing and allow the receiver to set the window size normally (col. 6, lines 55-59).

Since, Chaskar suggests the use of a dynamic window based flow control by varying the window size based on radio condition and buffer size of a network element between the wireless and wire-line network. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and apparatus for modifying the window size of Ack packet based available buffer size and bandwidth of the network of a network element as disclosed by Kalampoukas into the teaching of Chaskar because the window size of the ACK packet must take into consideration of congestion of the path between the end node, wherein congestion at the based station or wireless gateway is based on radio condition and buffer size is well known and expected in the art when window based flow control is implemented on the system. The motivation would have been to improve the throughput of the system and prevent the data loss.

6. Claims 6, 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaskar and Ziegler/Kalampoukas as applied to claims 1, 7 and 11 above, and further in view of Forslow (USP 6608832).

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Chaskar and Ziegler/Kalampoukas fail to disclose a network element is a SGSN performs header compression. In the same field of endeavor, Forslow discloses SGSN performing header compression (Col. 12, line 10-35).

Since, a method for compressing a header in slow link is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and apparatus for compressing header as disclosed by Forslow into the system and method of Chaskar and Ziegler/ Kalampoukas. The motivation would have been to reduce the cost of the call by compressing header to increase the throughput of the wireless link.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goel (IEEE) discloses a method and system for improving TCP performance over wireless link.

Kalampoukas (IEEE) discloses a method and system for improving TCP performance.


Chan (IEEE) discloses TCP over wireless links.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven HD Nguyen
Primary Examiner
Art Unit 2616
May 8, 2006